

AMENDMENTS TO THE SPECIFICATION

Please amend the title as follows:

~~NOVEL HYPERBRANCHED POLYMER~~ NOVEL MULTI-BRANCHED
POLYMER

Following the title, please insert the following paragraph:

CLAIM OF PRIORITY

This is a U.S. National Phase Application under 35 U.S.C. §371 of International Patent Application No. PCT/JP2004/017897 filed on November 25, 2004. The International Application was published in Japanese on June 9, 2005 as WO 2005/052009 A1 under PCT Article 21(2), which is incorporated by reference in its entirety.


Please replace the paragraph at page 4, lines 7 to 8 with the following:

(5) the multi-branched polymer according to (4), wherein V is ~~an alkylene~~ polyoxy a polyoxyalkylene group in the formula (IV),

Please replace the paragraph at page 6, lines 15 to 16 with the following:

(11) the multi-branched polymer according to (10), wherein V11 is ~~an alkylene~~ polyoxy a polyoxyalkylene group in the formula (IX),

Please replace the paragraphs at page 16, lines 4 to 10 with the following:

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In the formula (IV), R1 to R3 are as defined above and V represents a connecting group having a valence of 3 or higher and is not particularly limited as long as it is a functional group with 3 or more linkages. Specific examples include the same functional groups as those shown as examples of X described earlier, and particularly, ~~alkylenepolyoxy~~ polyoxyalkylene groups are preferable.

Specific examples of ~~alkylenepolyoxy~~ polyoxyalkylene groups include connecting groups shown below.

Please replace the paragraph at page 23, lines 15 to 19 with the following:

When copper compounds are used, it is possible to add 2,2'-bipyridyl, 1,10-phenanthroline, alkylamines (tributylamine and so forth), polyamines (tetramethylethylenediamine, ~~pentamethylethylenediethylenetriamine~~ pentamethyldiethylenetriamine, hexamethyltriethylenetetramine, and so forth) and the like as a ligand for enhancing catalytic activity.

Please replace the paragraph at page 27, line 4 with the following:

~~BEST MODE FOR CARRYING OUT DETAILED DESCRIPTION OF THE~~
INVENTION

Please replace the paragraph at page 27, lines 10 to 21 with the following:

Grignard solution was prepared from 13.4 g (54.7 mmol) of ~~3,5-~~
~~bis(methoxymethyl)bromobenzene~~ 3,5-bis(methoxymethyl)bromobenzene, 3.25 g (134 mmol) of magnesium, and 60 ml of tetrahydrofuran (hereinafter abbreviated as "THF") in a reaction vessel of

200 ml. Subsequently, 30 ml (387 mmol) of dimethylformamide (DMF) was added dropwise into this solution at 0°C and further agitated at room temperature for 3 hours after completion of the addition. Solvent was removed from the obtained reaction liquid by reduced pressure and 2N hydrochloric acid was added. The obtained reaction mixture was extracted 3 times with 50 ml of diethyl ether and the organic layer was collected and dried with anhydrous magnesium sulfate after rinsing with water. Residues obtained by the removal of solvent were purified by silica gel column chromatography to obtain 8.36 g (43.0 mmol) of the target 3,5-bis(methoxymethyl)benzaldehyde as a viscous liquid. Yield was 79%.

Please replace the paragraph at page 29 lines 1 to 7 with the following:

Then 5.94 g (75 mmol) of pyridine was added to this extracted solution and 13.8 g (60 mmol) of 2-bromo isobutyryl bromide was added when cooled to 0°C and agitated at room temperature overnight. The reaction liquid was rinsed with water, extracted with chloroform, and after being dried with anhydrous magnesium sulfate, the concentrated solution was purified by silica gel column chromatography (hexane: ethyl acetate = 4:1) to obtain 22.4 g (Yield was 89% when converted to prepared glycidyl methacrylate) of a colorless transparent viscous compound.

Please replace the paragraphs at page 30 lines 5 to 9 with the following:

Similarly, average particle sizes of 2 wt% solutions prepared by toluene, hexane, acetone, ~~dimethylformimide~~ dimethylformamide, and chloroform instead of tetrahydrofuran solvent were all 7 nm and influence of solvents was not observed.

Moreover, it became clear from Fig. 1 that the solution of multi-branched polymer 1 is a transparent solution containing nanoparticles with monodispersed particle size distribution.

Please replace the paragraph at page 30 lines 12 to 23 with the following:

In a reaction vessel of 100 ml, 2.10 g (4.58 mmol) of the monomer obtained in (2) described above, 0.197 g (1.37 mmol) of cuprous bromide, 0.43 g (2.75 mmol) of bipyridyl, and 7.9 g of chlorobenzene were added, and after mixing to homogeneity, the inside was degassed using a water jet aspirator. The reaction vessel was sealed after the reaction system was replaced with nitrogen and agitated for 90 minutes in an oil bath set to 110°C in advance. The obtained mixture was purified by silica gel column chromatography using tetrahydrofuran (THF) solvent and the concentrated solution was reprecipitated twice with hexane. 0.68 g (yield 32%) of multi-branched polymer 2 was obtained as a colorless transparent viscous compound. The weight average molecular weight of this compound was $M_w = 9640$ ($M_w/M_n = 1.18$) as a result of measurement by the “GPC method” when converted to polystyrene, and $M_w = 5144$ ($M_w/M_n = 1.16$) by the “MALS method”.